# THE NEED FOR SPEED

*Enabling DevOps Through Enterprise Architecture*

MARK LANDY & KEVIN BEHR


The Johnson & Johnson Family of Companies is organized into several business segments comprised of franchises and therapeutic categories

*More than 125 Years of Caring. Our 128,300 employees touch the lives of over a billion people every day, throughout the world*

**MEDICAL DEVICES** **CONSUMER** **PHARMACEUTICAL**

**500K**
**Unique Visitors**

**14**
**Acquisitions /Divestitures in Flight**

**450**
**Apps Released Each Year**

**500**
**Terabytes of Data**

**$113**
**JNJ NYSE**

**$311B**
**MktCap**

**$2B**
**Annual IT Spend**


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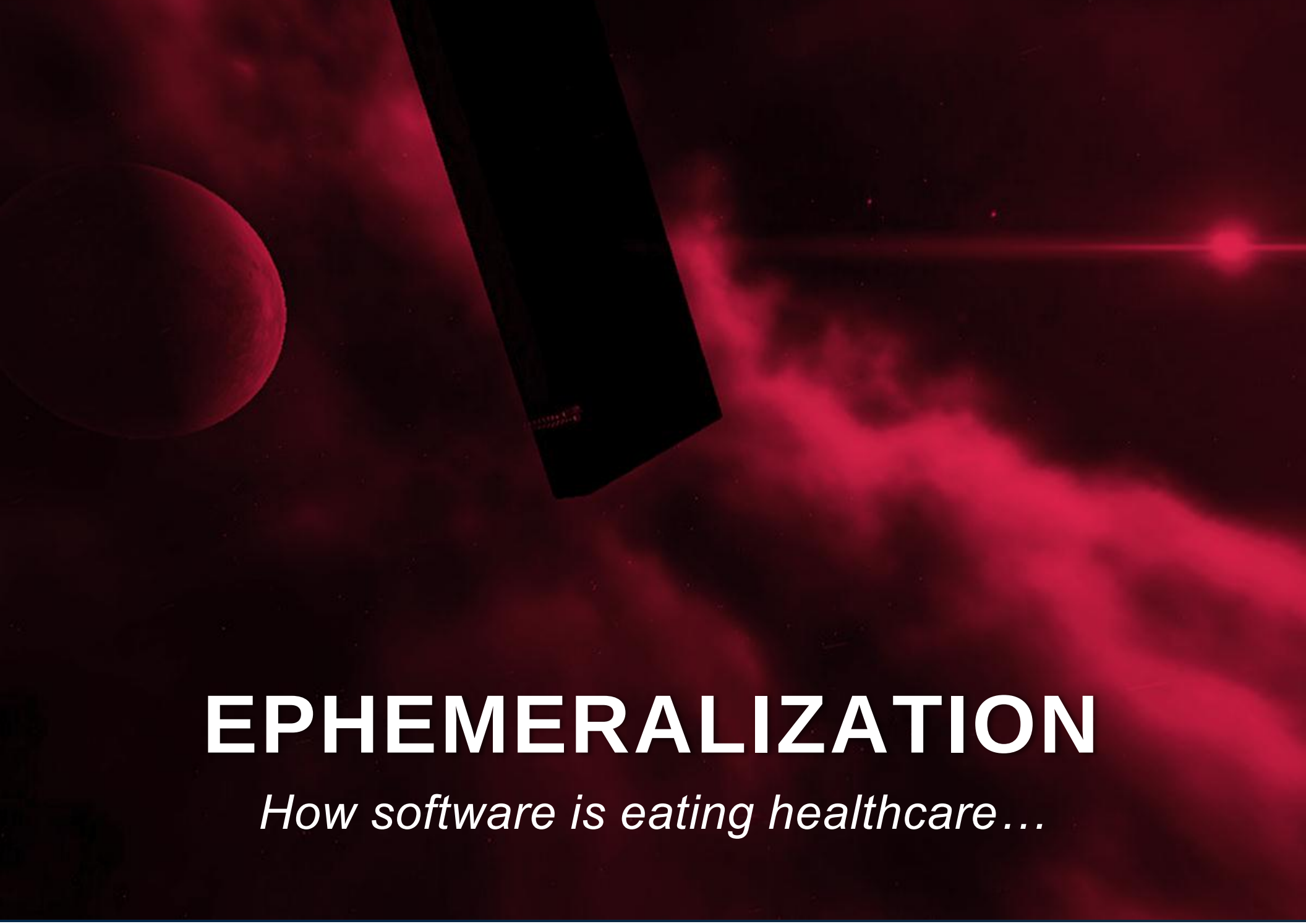

# EPHEMERALIZATION

*How software is eating healthcare…*

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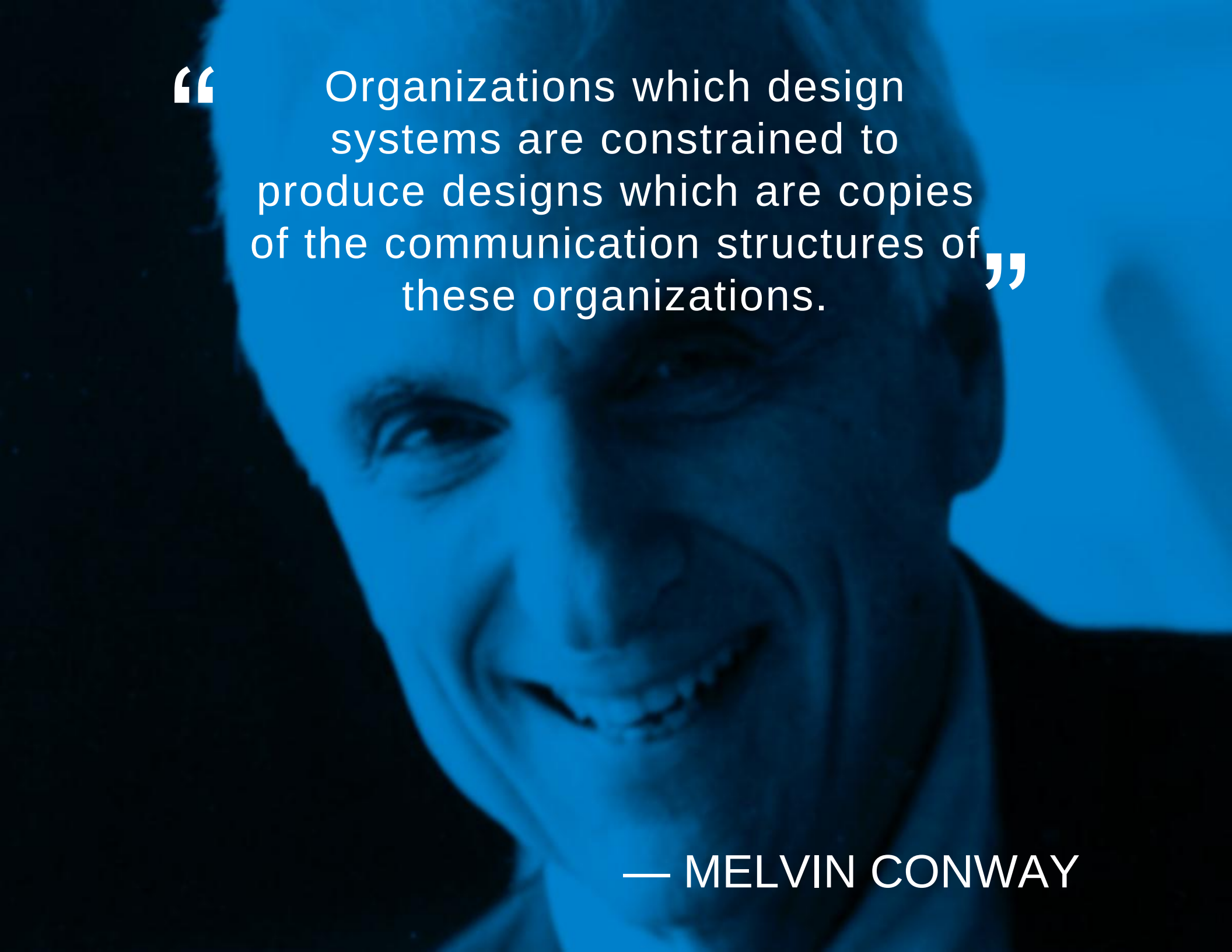
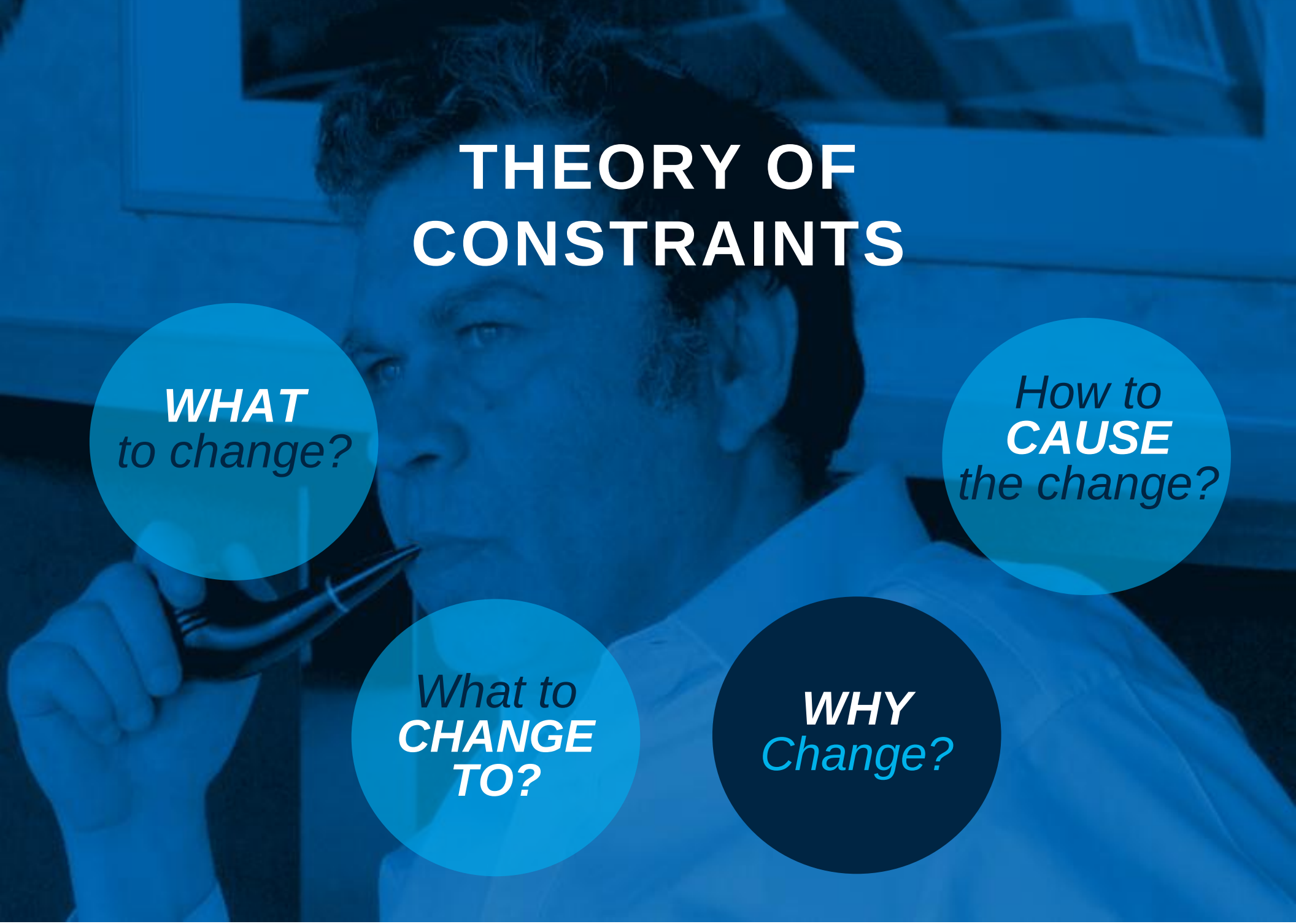
WE ARE RESPONSIBLE TO OUR...
Doctors, Nurses and Patients
Employees and their Families
Communities Where we Work
Finally, to our shareholders


The
Phoenix
Project


“ Organizations which design systems are constrained to produce designs which are copies of the communication structures of these organizations. ”
— MELVIN CONWAY

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# SYSTEMS THINKING

*From local optima to whole-enterprise mindset*

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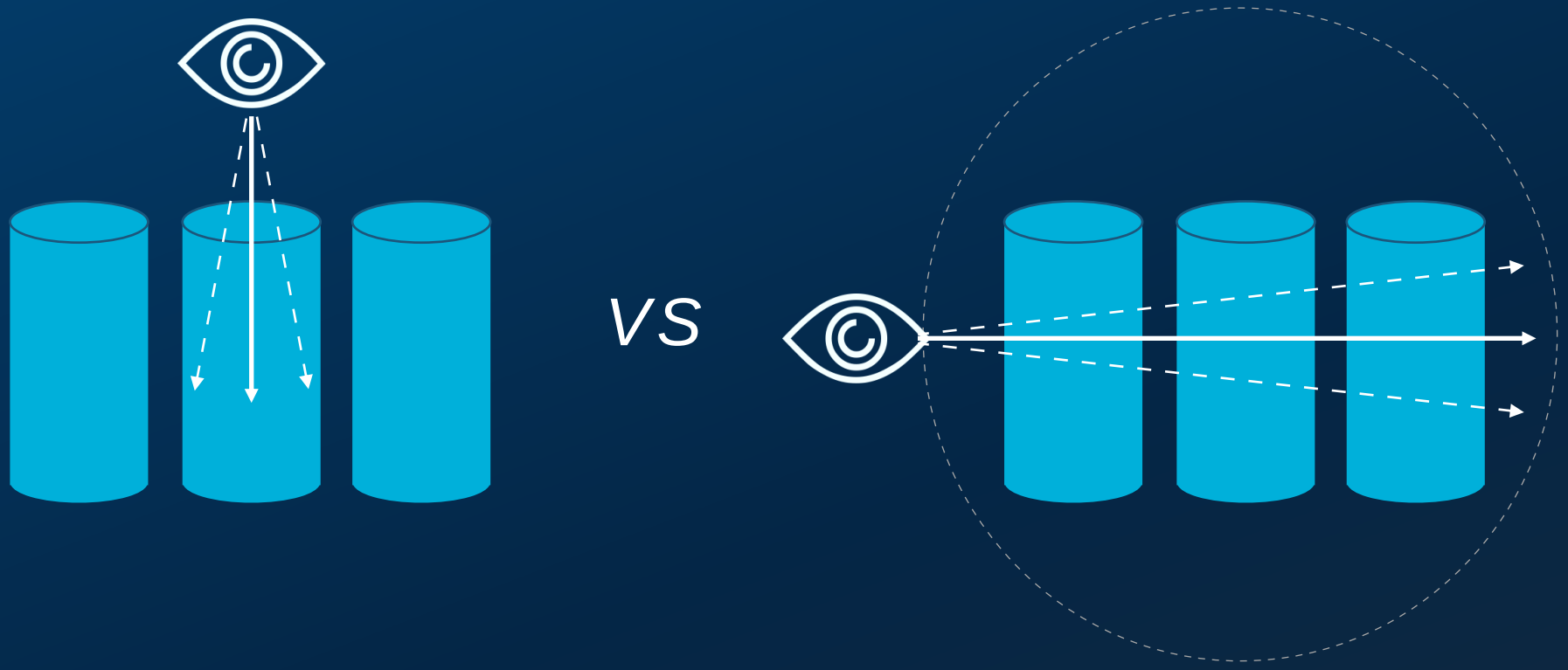
# ENTERPRISE

LOCAL OPTIMA

GLOBAL OPTIMA

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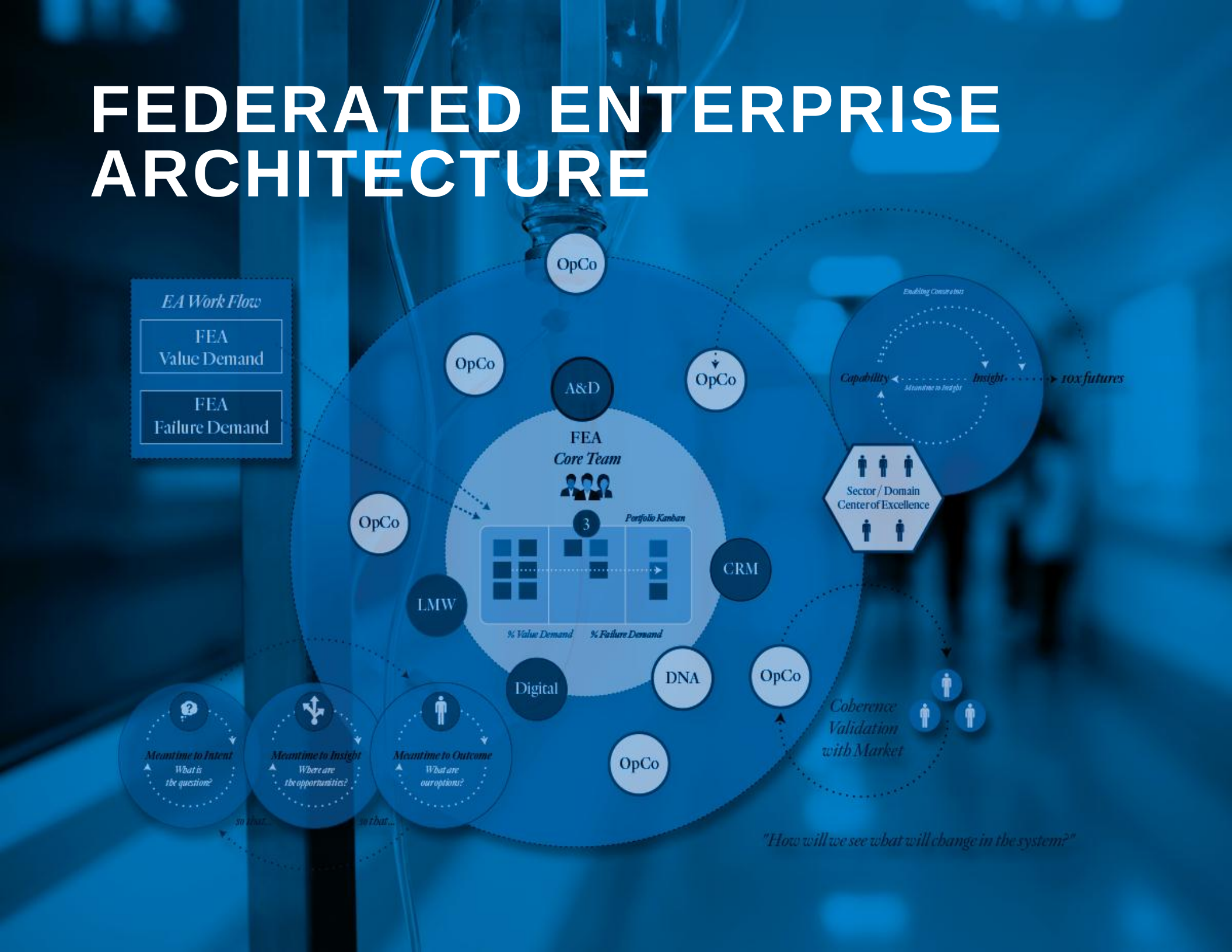
# FEDERATED ENTERPRISE ARCHITECTURE



# DECISION MAKING

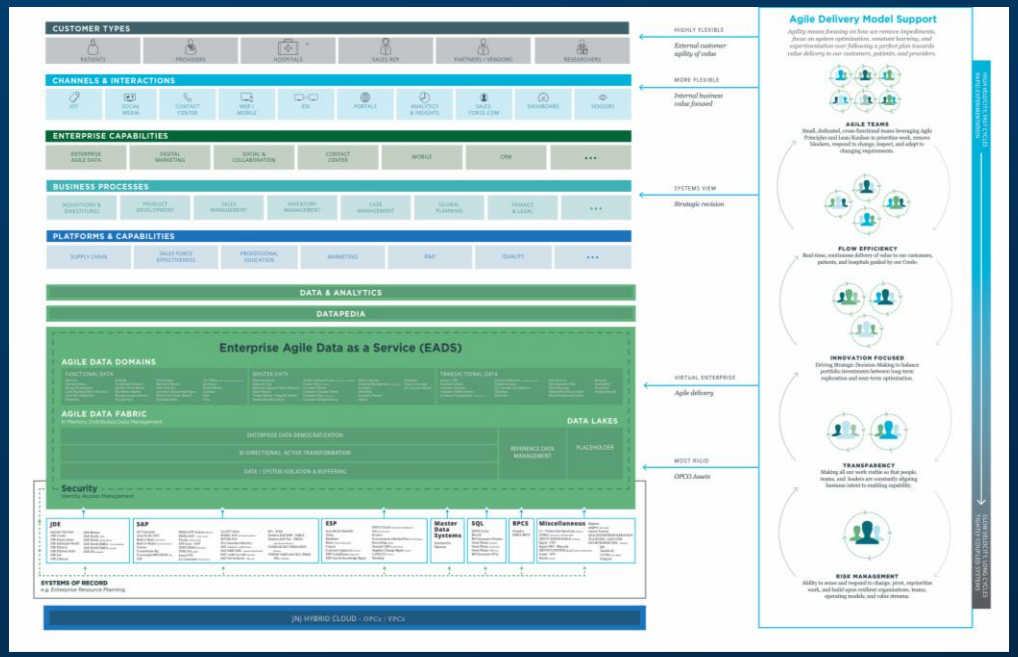
Complexity informed design thinking applied to FEA means **leveraging an abductive sensemaking process** of manipulating, organizing, pruning and **filtering demand** *(both failure and value demand)* through **human sensor networks.**

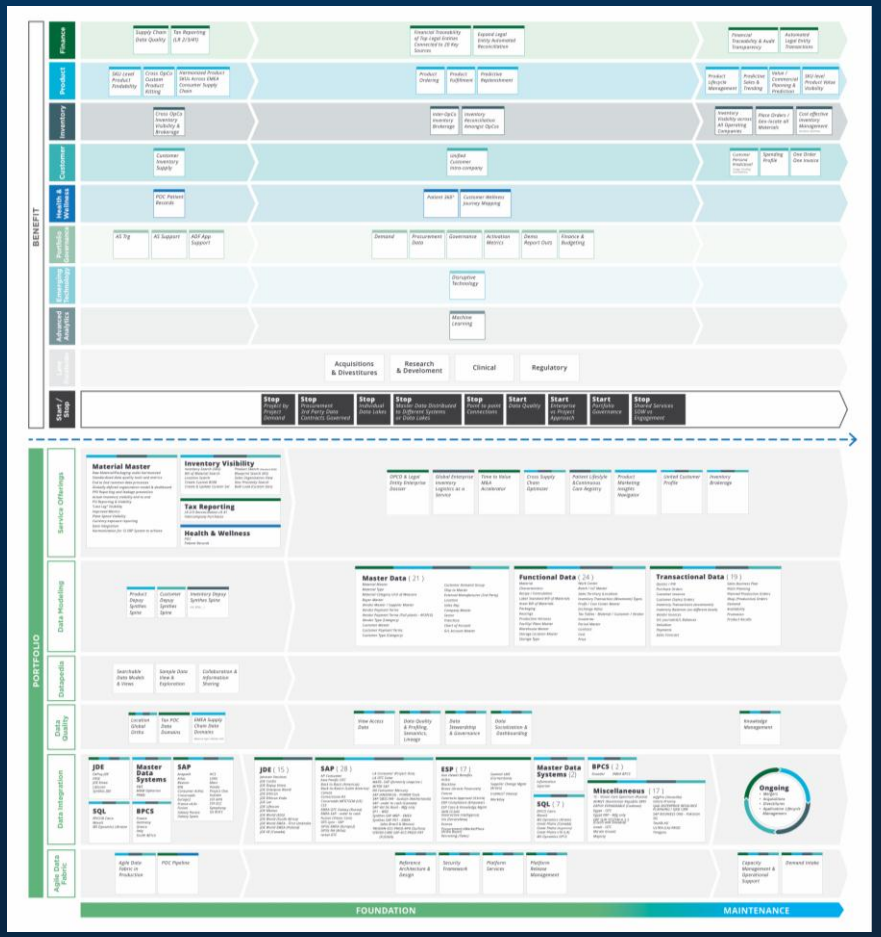

“ Enterprises which design and execute strategies are constrained to programs and project strategies which mirror the existing financial model. ”
- MELVIN CONWAY(REDUX)

# **FUND STRATEGIES**
# NOT PROJECTS

Projects create Temporal Silos which prevent a culture of continuous improvement.

# WHICH ENABLES ENTERPRISE DATA

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# CONTINUOUS IMPROVEMENT

*FEA relentlessly pursues flow*

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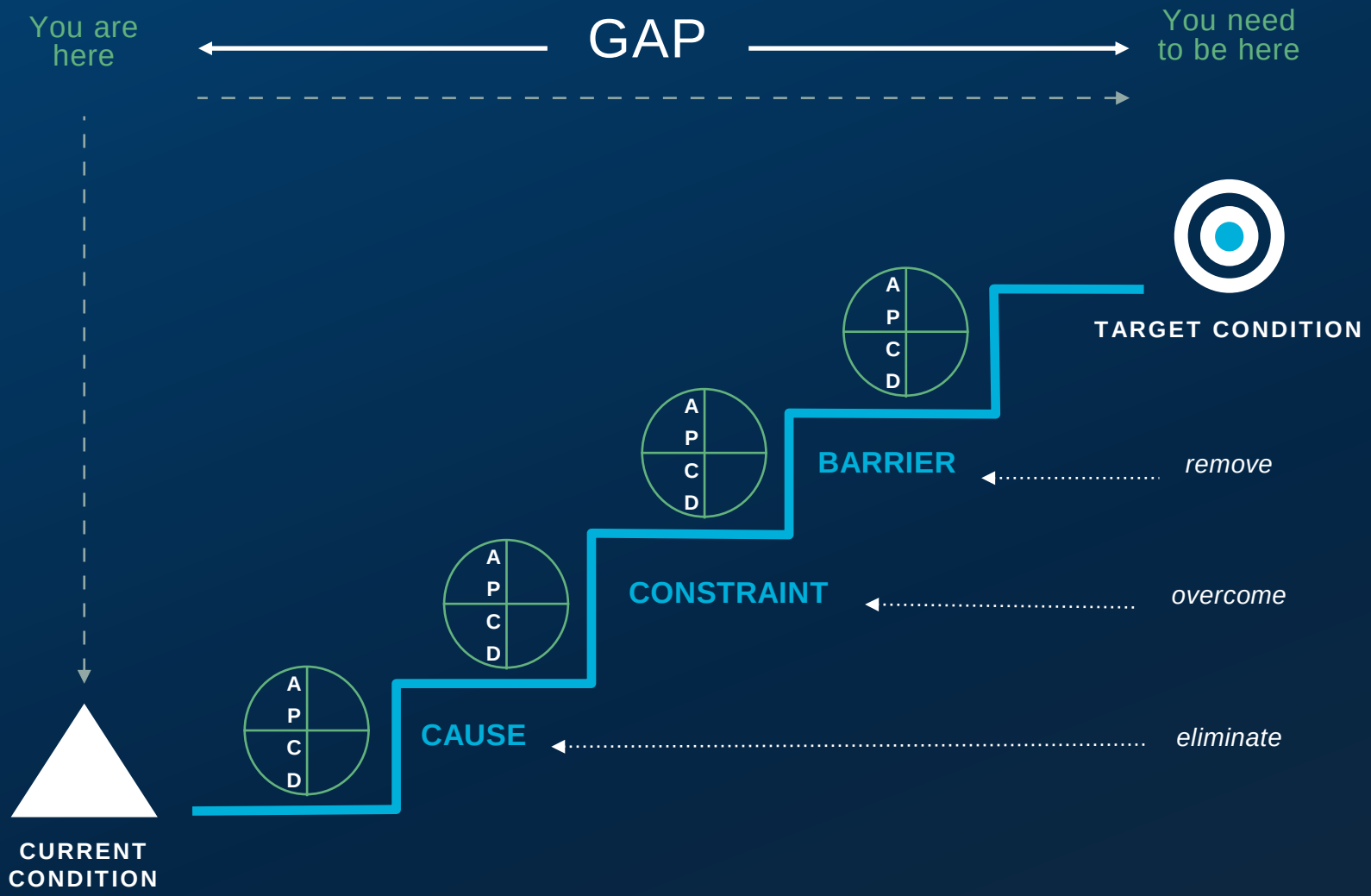
# LEANING INTO LEAN THINKING

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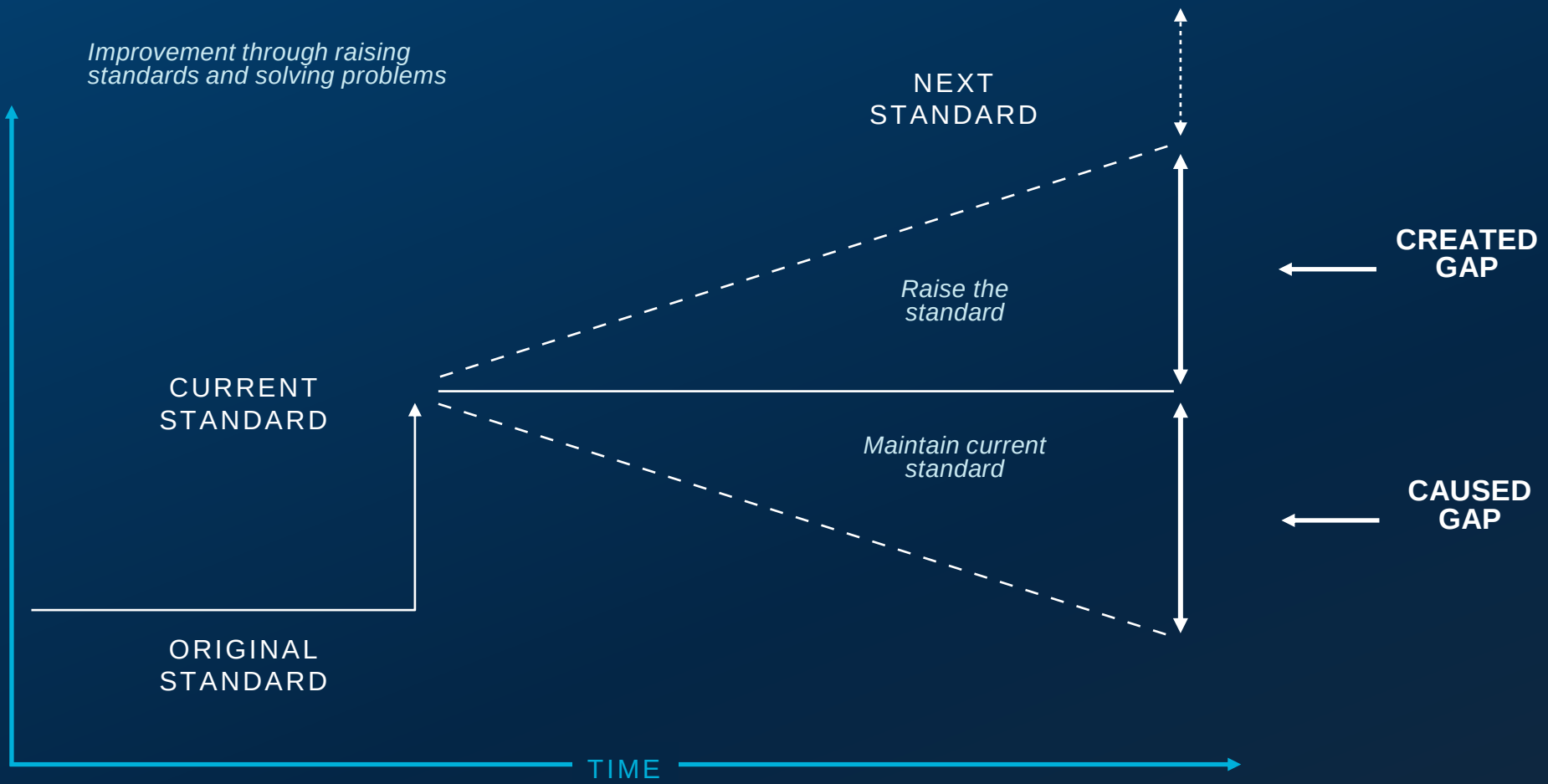
# DESIGN THINKING
# NEW STANDARDS

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“ Technology
is a benefit
if,
and only if,
it diminishes
a limitation. ”
— ELI GOLDRATT

THE WALL STREET JOURNAL.



CIO JOURNAL.

# Johnson & Johnson Targets 85% of Apps in Cloud by 2018

Sequencing genomes, parsing disease pathways and modeling new medical devices is compute-intensive work.

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# PRINCIPLES OF CLYDESDALES

- Visualize Your Work, but first, Visualize Your System!
- Identify the biggest constraints on your system
- Switch from Projects (Temporal Silos), to Strategies (Capability Value Streams)
- Align cross-functional, cross-disciplined teams to Strategies & Enterprise Services
- Shape Value and Failure Demand, and Introduce Slack
- Identifying Asymmetric Bets for Experimentation Using Human Sensor Network


THANK YOU!
Mark Landy & Kevin Behr

# EXTRAS

# ILLUSTRATIVE TIMING

## OUR JOURNEY

### THE BASICS…

Information Technology provides for productivity through automation and error reduction. Businesses invest resources in IT for a payback over time.

### THE START OF A PROBLEM…

We started becoming a ***collection of companies*** that were once standalone, grew organically, and made their own IT investments. None of these investments were meant to operate in unison with other companies.

In each company we continued to invest in technology for productivity. ***Benefits were localized,*** as we tended to operate as independent entities.

## OUR EXPERIENCE TODAY

***Complexity*** in our technology systems ***increased*** as we "integrated" businesses. This integration was done in a point to point manner resulting in a ***geometric increase in data mappings and meanings.*** This was brittle. Changes now required significant planning and negotiation.

We continued to encounter

- New products
- Corp Events
- Business & operations realignments e.g. SC
- Compliance challenges
- Cost pressures

which required changes to technology systems that weren't meant to change that often, ***increasing data "lock-in" or "debt."***

## CLASSICAL INTEGRATION PROGRAMS FAIL

When attempting to "bring together" our systems we found they ***could not easily be made "one."*** The enterprise view was an illusive goal using classic MDM and data warehouse or messaging. We had to compromise.

Accelerated market conditions required increasing change to our technology platforms – which made them more brittle. We ***integrated silos and create more complexity***

IT is now a drag on productivity and agility and is constraining our business…

- ***Errors***
  ***Rework***
  ***Delay***
  ***Lost opty***

The need to shift to emerging ***Schema on Read*** (HADOOP Style) for some of our key integrations instead of classic ***Schema on Write*** (RDBMS Style)

## OUR IT STRATEGY

Our IT platforms were never intended to operate at the pace of change of todays markets and at an enterprise scope.

We are ***transforming our technology platforms into "Agile" systems that operate at the pace of our business*** and for the scope of our enterprise, while allowing for local differentiation.

### FLEXIBLE INFRASTRUCTURE & PAAS

Deliver highly virtualized, automated, infrastructure with compliance and security baked-in. Provision repeatable standard platforms on-demand; SW defined less $$ capital & run.

### FLEXIBLE RAPID DELIVERY

Use Agile delivery techniques and Dev-Ops which continuously moves changes through development to operations in a week at a time.

### AGILE DATA & DATA FABRIC

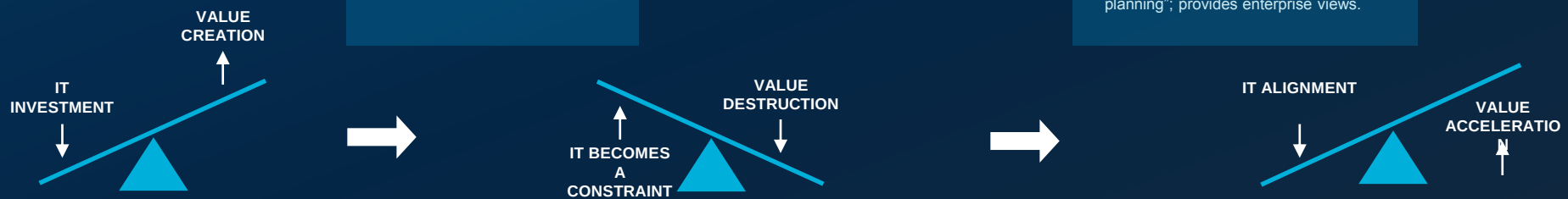
Relieve data constraints due to brittle models and integration; use Agile Data capabilities enabled by in-memory data grids. Removes need for "grand planning"; provides enterprise views.

## TOMORROW

On demand enterprise aware IT platforms (PaaS), with embedded compliance and security, ***powers speed-to-market and accelerates technology consolidation and enterprise data access.***

Agile software development coupled with on demand PaaS provides ***Development–thru–Operations rapid delivery and iterative capabilities.***

Our technology platforms now contribute to an ***enterprise data fabric which is flexible and changeable without impact to our core legacy platforms.*** This provides an enterprise veneer on-top of our decentralized platforms. ***This positions us to accelerate process consolidation.***

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